

CLAIMS

What is claimed is:

1. A wireless transmit/receive unit (WTRU) for communication in at least two types of wireless networks comprising:

a protocol engine having at least two wireless communication interfaces, each wireless communication interface configured for wireless linking with a different type of wireless network;

each communication interface configured to pass control signals and user communication data to a common application processing component;

an application broker configured to monitor control signaling between the lower layer protocol engine and the upper layer application processing component;

a communications broker having a data buffer and defining a switchable data path for user data between the upper layer application processing component and a selected one of the wireless interfaces; and

the application broker associated with the communications broker to control data buffering and data path switching by the communications broker such that data flowing to a first wireless interface of the protocol engine during a communication session is buffered while a wireless link is established with a different second wireless interface of the protocol engine for the communication session and the communication broker data path is switched to the second wireless interface and the buffered data is released therethrough after a wireless link is established for the communication session via the second wireless interface.

2. The invention of claim 1 wherein one of the wireless communication interfaces is configured for UMTS wireless communications and another one of the wireless communication interfaces is configured for 802.11 WLAN communications.

3. The invention of claim 2 wherein the communication broker data path is configured to transport packet switched data.

4. The invention of claim 2 wherein a data path is defined for circuit switch data between the upper layer application processing component and the UMTS wireless interface.

5. The invention of claim 2 wherein the application broker includes a link monitor and is configured to trigger the initiation of a wireless link through a different wireless interface based upon monitored link data meeting predetermined criteria.

6. The invention of claim 5 wherein the application broker includes an Application Session Manager configured to controls the signaling during the establishment of a wireless link through a different wireless interface and an inter-working unit configured to maintain and convert context information for transmission during the establishment of a wireless link through a different wireless interface.

7. The invention of claim 6 wherein the application broker includes a Subscriber Identity Module (SIM) reader configured to read a SIM containing the user's identity.

8. The invention of claim 1 wherein the communication broker data path is configured to transport packet switched data.

9. The invention of claim 1 wherein the application broker includes a link monitor and is configured to trigger the initiation of a wireless link through a different wireless interface based upon monitored link data meeting predetermined criteria.

10. A wireless link handover method for a wireless transmit/receive unit (WTRU) for switching a wireless link from a first to a second type of wireless

network during a communication session wherein the WTRU has a protocol engine having first and second wireless communication interfaces configured for wireless linking with the first and second types of wireless networks, respectively, each communication interface configured to pass control signals and user communication data to a common application processing component, the method comprising:

providing a data buffer and a switchable data path for user data between the upper layer application processing component and a selected one of the wireless interfaces,

monitoring control signaling between the lower layer protocol engine and the upper layer application processing component; and

controlling the data buffer and data path switching such that data flowing to the first wireless interface of the protocol engine during the communication session is buffered while a wireless link is established with the second wireless interface of the protocol engine for the communication session and the data path is switched to the second wireless interface and the buffered data is released therethrough after a wireless link is established for the communication session via the second wireless interface.

11. The method of claim 10 wherein a WLAN wireless link is switched to a UMTS wireless link and the first wireless communication interface is configured for UMTS wireless communications and the second wireless communication interface is configured for 802.11 WLAN wireless communications.

12. The method of claim 10 wherein a UMTS wireless link is switched to a WLAN wireless link and the first wireless communication interface is configured for 802.11 WLAN wireless communications and the second wireless communication interface is configured for UMTS wireless communications.

13. The method of claim 10 wherein the switchable data path transports packet switched data.

14. The method of claim 10 wherein the initiation of a wireless link through the second wireless interface is triggered based upon monitored link data meeting predetermined criteria.

15. The method of claim 14 wherein an Application Session Manager controls signaling during the establishment of a wireless link through the second wireless interface and an inter-working unit maintains and converts context information for transmission during the establishment of a wireless link through the second wireless interface.

16. An application specific integrated circuit (ASIC) for a wireless transmit/receive unit (WTRU) configured for communication in at least two types of wireless networks and having a protocol engine having at least two wireless communication interfaces where each wireless communication interface configured for wireless linking with a different type of wireless network and to pass control signals and user communication data to a common application processing component, the ASIC comprising:

- an application broker configured to monitor control signaling between the lower layer protocol engine and the upper layer application processing component;

- a communications broker having a data buffer and defining a switchable data path for user data between the upper layer application processing component and a selected one of the wireless interfaces; and

- the application broker associated with the communications broker to control data buffering and data path switching by the communications broker such that data flowing to a first wireless interface of the protocol engine during a communication session is buffered while a wireless link is established with a different second wireless interface of the protocol engine for the communication session and the communication broker data path is switched to the second wireless

interface and the buffered data is released therethrough after a wireless link is established for the communication session via the second wireless interface.

17. The invention of claim 16 wherein the application broker includes a link monitor and is configured to trigger the initiation of a wireless link through a different wireless interface based upon monitored link data meeting predetermined criteria.

18. The invention of claim 17 wherein the application broker includes an Application Session Manager configured to controls the signaling during the establishment of a wireless link through a different wireless interface and an inter-working unit configured to maintain and convert context information for transmission during the establishment of a wireless link through a different wireless interface.

19. The invention of claim 18 wherein the application broker includes a Subscriber Identity Module (SIM) reader configured to read a SIM containing the user's identity.

20. The invention of claim 16 wherein the communication broker data path is configured to transport packet switched data.